

Abstract Submitted
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Distinguishing supersymmetry and extra dimensions at the LHC KYOUNGCHUL KONG, KONSTANTIN MATCHEV, University of Florida, ASESH DATTA, University of Michigan — One of the defining features of supersymmetry is that the spins of the superpartners differ by $1/2$ unit from their Standard Model counterparts. In order to prove a discovery of supersymmetry at the LHC, one would therefore have to measure the spins of the superpartners. This is important since a class of models with TeV size extra dimensions (known as Universal Extra Dimensions) have identical collider signatures, and the only difference from supersymmetry is that the spins of the Kaluza-Klein particles are the same as their partners in the Standard Model. We describe several methods for spin determinations of the superpartners at the LHC and discuss to what extent supersymmetry can be distinguished from a model with Universal Extra Dimensions.

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